UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/705,696	11/06/2000	Joonbae Park	GCT-011	7786

7590 11/17/2004

Fleshner & Kim, LLP
14500 Avion Parkway
Suite 125
Chantilly, VA 20151

EXAMINER	
BAYARD, EMMANUEL	
ART UNIT	**PAPER NUMBER**
2631	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/705,696	Applicant(s) PARK ET AL.	
	Examiner Emmanuel Bayard	Art Unit 2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This is in response to amendment filed on 7/26/04 in which claims 1-25 are pending. The applicant's amendments have been fully considered but they are moot based on the new ground of rejection. Therefore this case is made final.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-7, 17, 20-21, 24, 26-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Clarke et al U.S. patent No 5,874,862.

As per claims 1 and 7, Clarke et al discloses a loop apparatus, comprising: a plurality of gain stages connected in series to amplify a radio frequency (RF) signal having a voltage, wherein each gain stage increases the voltage of the signal, and includes an input port that receives the signal and an output port that transmits the resulting amplified signal (see figs. 4-5 elements 5a, 5b, 15a, 15b and col.2, lines 6-14, 51-52 and col.3, lines 12-48); a plurality of feedback loops (see abstract and fig.6 elements 6, R4, R3 and col.2, lines 15, 53 and col.4, lines 2-7) that cancel an undesired offset of the resulting amplified signal wherein each feedback loop connects to the output port and the input port of a corresponding one of the gain stages, such that each

gain stage is connected to a corresponding feedback loop that cancels the undesired offset) (see figs. 4-6) of its corresponding gain stage.

As per claim 2, Clarke inherently includes a direct current offset voltage. As per claim 3, Clark inherently include a high-pass filter that filters the direct current offset voltage.

As per claim 4, Clarke inherently includes a variable gain amplifier.

As per claim 5, Clarke does include a capacitor (see figs 4-5), which would inherently be mounted on a Chip.

As per claim 6, Clarke includes an analog radio frequency signal (see abstract).

As per claims 17 and 21, Clarke inherently includes an analog amplified signal.

As per claims 20 and 24, Clarke includes a loop apparatus within a single amplification unit (see fig.6).

As per claims 26-30 Clarke inherently includes an antenna unit to provide the RF signal to at least a first one of the gain stages.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 8-16, 18-19, 22-23, 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Clarke et al U.S. patent No 5,874,862 in view of Tham et al U.S. patent No 6,049,702.

As per claim 8, Clarke discloses a direct conversion receiver, comprising: an amplification unit that receives and amplifies a RF signal (see abstract), wherein the amplification unit includes a plurality of gain stages connected in series to amplify the signal having a voltage, wherein each gain stage increases the voltage of the signal, and includes an input port that receives the signal and an output port that transmits the resulting amplified signal (see figs. 4-5 elements 5a, 5b, 15a, 15b and col.2, lines 6-14, 51-52 and col.3, lines 12-48); a plurality of feedback loops (see abstract and fig.6 elements 6, R4, R3 and col.2, lines 15, 53 and col.4, lines 2-7) that cancel an undesired offset of the resulting amplified signal wherein each feedback loop connects to the output port and the input port of a corresponding one of the gain stages, such that each gain stage is connected to a corresponding feedback loop that cancels the undesired offset) (see figs. 4-6) of its corresponding gain stage.

However Clarke does not teaches a mixer that demodulates the amplified signal by mixing the amplified signal with a local oscillation signal to form a demodulated base band signal.

Tham et al teaches a mixer (see figs.1-4 element 64) that demodulates the amplified signal by mixing the amplified signal with a local oscillation signal to form a demodulated base band signal (see col.1, lines 46-49).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Tham into Clarke as to down-convert data signal into an intermediate demodulated frequency signal.

As per claims 9, 19, 23, Tham includes an analog-to digital converter (see figs. 1-2 elements 76-78. Furthermore implementing such teaching into Clarke would have been obvious to one skilled in the art as to sample the IF demodulated base band signal to a digital sampling data stream.

As per claim 10, Tham includes a channel selection filter (see figs. 1-2 elements 72-74). Furthermore implementing such teaching into Clarke for removing an out-of-band signal from the demodulated base band signal would have been obvious to one skilled in the art as to a noiseless and accurate IF demodulated signal.

As per claim 11, Clarke et Tham in combination would include a direct current offset voltage and each feedback loop includes to cancel an undesired offset of the resulting amplified signal direct current offset canceling unit for rejecting the direct current offset voltage accumulated by its corresponding gain stage as to determine a degree of similarly between the input signal and the output signal.

As per claim 12, Tham includes filter (see figs. 1-2 elements 72-74). Furthermore implementing such filter as high pass into Clarke for canceling offset signal would have been obvious to one skilled in the art as to a noiseless and accurate IF demodulated.

As per claim 13, Clarke et Tham in combination would include a variable gain amplifier signal as to accurately monitor the amplitude level of the signal during the course of the operation in order to generate the best output signal.

As per claim 14, Clarke does include each feedback loop includes a capacitor (figs. 4-6). Furthermore implementing such teaching to be mounted on a chip would have been obvious to one skilled in the art as to generate low power and heat dissipation more rapidly during the operation.

As per claims 15 and 25, Tham includes an analog radio frequency signal (see fig1 element RX and col.1, lines 23-33). Furthermore implementing such teaching into Clarke would have been obvious to one skilled in the art as for the demodulator to perform frequency conversion on the signal receive by the antenna.

As per claim 16, Tham and Clark in combination would include plurality of clock signals to generate the local oscillator signal, wherein each of the clock signals has a frequency less than the local oscillator signal as to accurately recover the input timing signal during the operation.

As per claims 18-19 and 22 Tham et al teaches a mixer (see figs.1-4 element 64) that demodulates the amplified signal by mixing the amplified signal with a local oscillation signal to form a demodulated base band signal (see col.1, lines 46-49). Furthermore implementing such teaching into Clarke would have been obvious to one of ordinary skill in the art as to down-convert data signal into an intermediate demodulated frequency signal.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wang et al U.S. patent No 6,711,418 B1 teaches a wireless personal mobile.

Seong U.S. patent No 5,321,852 teaches a circuit and method for converting a radio frequency signal into base band.

Igarashi et al U.S. patent No 5,940,143 teaches a high definition television signal.

Thompson U.S. patent No 4,506,232 teaches a third order PLL.

Green et al U.S. patent No 6,397,038 B1 teaches a satellite broadcast receiving.

Hogge et al U.S. patent No 4,788,512 teaches a gain maintenance apparatus.

Moger U.S. patent no 4,752,749 teaches a fast response tuner.

Ashley U.S. patent No 4,952,887 teaches a phase-lock loop circuit having outputs in quadrature.

Johnson U.S. patent No 5,414,741 teaches a low phase noise oscillator.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Emmanuel Bayard
Primary Examiner
Art Unit 2631

11/6/04

EMMANUEL BAYARD
PRIMARY EXAMINER